

CANDOMBLÉ ETHNOBOTANY: AFRICAN MEDICINAL PLANT CLASSIFICATION IN BRAZIL

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ABSTRACT.—The African-based Candomblé religion has survived in Brazil since the slave trade. Candomblé priests and priestesses, serving as healers for the Afro-Brazilian community, employ an arsenal of medicinal plant species to cure spiritually-derived illness. Their ethnoflora is systematically organized in reference to a pantheon of African deities, male and female, hot and cold, each of which retains his or her own personal plant pharmacopoeia. Medicinal species exhibit morphological and to a lesser extent medicinal properties that link them to the archetypes of one or more of the deities. The size, shape, texture, color, and aroma of the leaves, flowers, and fruit represent the principal organizational characteristics. Based on an orally transmitted Yoruba legend, this system of plant classification proved highly portable, allowing its successful diffusion from West Africa to an alien, New World floristic landscape.

RESUMEN.—La religión candomblé, de base africana, ha sobrevivido en Brasil desde el comercio de esclavos. Los sacerdotes y sacerdotistas candomblé, sirviendo como curanderos para la comunidad afro-brasileña, emplean un arsenal de especies de plantas medicinales para curar enfermedades derivadas espiritualmente. Su etnoflora está organizada sistemáticamente en referencia a un panteón de deidades africanas, masculinas y femeninas, calientes y frías, cada una de las cuales conserva su farmacopea personal de plantas. Las especies medicinales exhiben rasgos morfológicos, y en menor medida propiedades medicinales, que las vinculan a los arquetipos de una o más de las deidades. El tamaño, forma, textura, color y aroma de las hojas, flores y frutos representan las características organizativas principales. Basado en una leyenda yoruba transmitida oralmente, este sistema de clasificación de plantas probó ser altamente portátil, permitiendo su difusión exitosa del África Occidental a un paisaje florístico extraño en el Nuevo Mundo.

RÉSUMÉ.—La religion candomblé dont le siège est en Afrique s'est perpétuée au Brésil depuis le trafic des esclaves. Les prêtres et prêtresses candomblé, qui font office de guérisseurs dans la communauté afro-brésilienne, utilisent un arsenal de plantes médicinales pour guérir des maladies d'origine spirituelle. Leur ethnoflore est systématiquement organisée en fonction d'un panthéon de déités africaines (mâle/femelle, chaud/froid), chacune d'entre elles conservant sa propre pharmacopée personnelle à base de plantes. Les espèces médicinales montrent des propriétés morphologiques et, dans une moindre mesure curatives, qui les lient aux archétypes d'une ou plusieurs déités. La grosseur, la forme, la texture, la couleur et l'odeur des feuilles, des fleurs et des fruits représentent les principaux

critères de classification. Ce système de classification, fondé sur une légende yoruba transmise oralement, s'est avéré hautement transposable, ce qui a permis sa diffusion de l'Afrique occidentale à un paysage floral étranger du Nouveau Monde.

INTRODUCTION

Brazil witnessed the forced immigration of over four million African souls during its colonial and imperial history, roughly eight fold the number that reached the United States (Rawley 1981). Uprooted principally from Yoruba-speaking areas of Nigeria and from Angola, they found themselves in a social and physical environment altogether alien. Forced to adapt to the rigors of slave existence and the life-ways of an evolving Portuguese civilization, African slaves lost much of what constituted their material culture. They succeeded, however, in introducing significant elements of their religious and ethnomedical systems. In the northeastern state of Bahia (Figure 1), Yoruba slaves and freedmen had successfully transplanted the seeds of their belief system by the early 19th century (Costa Lima 1977). Candomblé, as the religion came to be called, expanded geographically and numerically to the point that today it represents a powerful cultural influence in the region.

Although various factors contributed to the perseverance of Candomblé (Bastide 1978, Camara 1988, Voeks 1993), one of the most important is its preoccupation with achieving happiness and good health for adherents during this as opposed to the next life. Candomblé *pais* and *mães-de-santo* (priests and priestesses), serving as healers for the Afro-Brazilian community, divine the spiritual source of illness and prescribe culturally acceptable treatments. Purely physical problems, such as colds, headaches, and muscle pain, are treated with an array of drug plants. This portion of their plant pharmacopoeia, however, was largely assimilated from Amerindian and European sources, and has minor relevance to health and healing concepts held by the Candomblé community (Voeks n.d.). It is when physical or emotional symptoms become chronic and recourse to medicinal plants and western medicine fails that imbalances with the spiritual realm are suspected. Illness is then viewed as a physical manifestation of forces outside the realm of secular comprehension. Priests seek out the other-world sources of such spiritual distress, and treat them with a plant pharmacopoeia that is systematically organized and ceremonially administered much as it was in West Africa.

This paper examines the role of ritual plants in healing among Candomblé adherents and secular clients. I focus on the plant pharmacopoeia administered in spiritual healing ceremonies and the system of classification used to organize this ethnoflora. Field research was carried out in the cities of Salvador, Itabuna, and Ilhéus, Bahia between 1988 and 1992. I gathered data through interviews and participant observation with four *pais* and two *mães-de-santo* representing the four principal Candomblé traditions—Ketu, Ijexá, Jeje, and Candomblé de Angola.

Ethnobotanical knowledge represents one of Candomblés closely guarded secrets. In the course of this study, *pais* and *mães-de-santo* seldom responded to direct questions regarding specific plant use and significance. Plant information was provided in each case when the priest felt that I was knowledgeable enough to understand it and to respect it. Moreover, what was considered part of 'the secret' varied



FIG. 1.—The State of Bahia, Brazil.

among temples. Some priests were thus willing to discuss one dimension of plant use, such as medicinal application, but not another, such as deity correspondence.

A total of 162 species employed in Candomblé spiritual healing ceremonies were discussed by informants or observed being used. Of these, I collected or otherwise identified 105 ritual species and determined their associated deities (Table 1). Plants were collected in various locations. Many of the cultivated species were gathered in temple gardens in the company of the *pai* or *mãe-de-santo*. Other plants were collected in disturbed areas, roadsides, pastures, or second growth forests, or in old growth forest. I gathered the remaining species at Candomblé herb stands in Salvador. Collections and duplicates were vouchered and deposited in the herbarium at the Centro de Pesquisa do Cacau, Itabuna, Bahia.

TABLE 1—Candomblé ritual species. Species and associated deities were provided by six informants. Vernacular names are listed in the order of their most frequent use in the *terreiro*. OW = Old World origin, NW = New World origin, Unkn. = unknown origin, Cosm. = cosmopolitan, Cult. = cultivated. Portuguese names are in italics. African names are in boldface italic. Tupí names are italicized and underlined. Voucher specimens are housed at the herbarium, Centro do Pesquisas do Cacau, Bahia, Brazil.

Family Species/collection number [geographical origin-status]	Vernacular names	Associated Orixá(s) (number of informants)
Agavaceae		
<i>Dracaena fragrans</i> (L.) Ker Gawl./172 [OW-cosm. cult.]	<i>peregun/nativo</i>	Ogun (4), Oxóssi, Ossâim
<i>Sansevieria</i> cf. <i>aethiopica</i> Thunb./NC [OW-cosm. cult.]	<i>espada de Ogun/ ida orixá</i>	Ogun (4)
<i>Sansevieria</i> cf. <i>aethiopica</i> Thunb./NC [OW-cosm. cult.]	<i>espada de Oxóssi</i>	Oxóssi (4)
Anacardiaceae		
<i>Mangifera indica</i> L./NC [OW-cosm. cult.]	<i>manga</i>	Ogun
<i>Schinus terebinthifolius</i> Raddi/191, 220 [NW-cosm. weed]	<i>aroeira/perôko/ajobiewe</i>	Ogun, Iansã (2)
<i>Tapirira guianensis</i> Aubl./354, 389 [NW]	<i>pau pombo</i>	Oxalá (2)
Apocynaceae		
<i>Catharanthus roseus</i> (L.) G. Don/398 [NW-cosm. cult. & weed]	<i>bom dia</i>	Nanã
<i>Catharanthus roseus</i> var. <i>albus</i> Sweet/399 [NW-cosm. cult. & weed]	<i>boa noite</i>	Oxalá
Araceae		
<i>Dieffenbachia maculata</i> (Lodd.) G. Don/222 [NW-cosm. cult.]	<i>comigo ninguem pode</i>	Ogun
<i>Philodendron</i> sp./260 [NW]	<i>sete chagas</i>	Omolu (2)
Arecaceae		
<i>Elaeis guineensis</i> Jacq./NC [OW-cosm. cult.]	<i>dendê/mariuô</i>	Exu, Ogun, all the orixás
Asteraceae		
<i>Baccharis</i> sp./151 [NW]	<i>abre caminho</i>	Ogun (3), Oxóssi
<i>Bidens pilosa</i> L./204 [NW-cosm. weed]	<i>carrapicho/picão/ewe susu</i>	Exu (2)
<i>Blanchetia heterotricha</i> DC./154 [NW]	<i>selva de Ogun</i>	Ogun (2)
<i>Conocliniopsis prasiifolium</i> (DC.) K. & R./277 [NW]	<i>cama de coelho</i>	Oxóssi
<i>Mikania glomerata</i> Spreng./334 [NW]	<i>folha do ar</i>	Oxalá

Family Species/collection number [geographical origin-status]	Vernacular names	Associated Orixá(s) (number of informants)
<i>Pluchea sagittalis</i> (Lam.) Cabrerá/286 [NW]	<i>assa peixe branco</i>	Ogun
<i>Pluchea suaveolens</i> (Vell.) Kuntze/213, 236 [Unkn.]	<i>quitoco</i>	Omolu, Ossáim
<i>Rolandra fruticosa</i> (L.) Kuntze/263 [NW]	<i>vence tudo</i>	Ogun (3), Oxóssi
<i>Vernonia condensata</i> Baker/177, 243 [NW]	<i>alumã/ewe auro</i>	Ogun, Omolu
<i>Vernonia</i> cf. <i>cotoneaster</i> Less./249 [NW]	<i>vence demanda</i>	Ogun
<i>Vernonia schoenanthus</i> L./190 [Unkn.]	<i>alumã/ewe auro</i>	Ogun, Omolu
<i>Wedelia paludosa</i> DC./383 [NW]	<i>mal-me-quer/bai joco</i>	Oxum (2), Omolu
<i>Wulffia baceata</i> (L. f.) Kuntze/265 [NW]	<i>acoci</i>	Oxum
Bignoniaceae		
<i>Newbouldia laevis</i> Seem./319 [OW-cult.]	<i>akokô</i>	Xangô
Boraginaceae		
<i>Cordia</i> sp./352 [NW]	<i>baba de boi</i>	Oxalá
Caesalpiniaceae		
<i>Bauhinia ovata</i> Vog./373 [NW]	<i>unha da vaca/pata da vaca/abafé</i>	Ogun, Yemanjá, Exu
<i>Caesalpinia pulcherrima</i> (L.) Sw. [NW-cosm. cult.]	<i>maravilha/barba de barata</i>	Oxum
<i>Senna occidentalis</i> (L.) Link/184 [NW-cosm. weed]	<i>fedegoso</i>	Iansã
Campanulaceae		
<i>Centropogon cornutus</i> (L.) Druce/158 [NW]	<i>bico de papagaio/ crista de peru/ ewe akuku</i>	Xangô (2)
Caprifoliaceae		
<i>Sambucus australis</i> Cham. & Schlecht./254 [NW]	<i>sabugueiro</i>	Oxalá, Oxum
Caryophyllaceae		
<i>Drymaria cordata</i> (L.) Willd. ex. Roem. & Schult./160 [Unkn.-cosm. weed]	<i>vintém</i>	Oxum
Chenopodiaceae		
<i>Chenopodium ambrosioides</i> L./238, 244 [NW-cosm. weed]	<i>mastruz</i>	Xangô, Iansã
Clusiaceae		
<i>Garcinia kola</i> Heckel/300 [OW-cult.]	<i>orobô</i>	Xangô, all the orixás
Commelinaceae		
<i>Commelina diffusa</i> Burm. f./385 [NW-cosm. weed]	<i>marianinha/opodo odo</i>	Yemanjá
Convolvulaceae		
<i>Ipomoea pes-caprae</i> (L.) Sweet/384 [Unkn.-cosm.]	<i>salsa da praia/ orobo aiba</i>	Naná

Family Species/collection number [geographical origin-status]	Vernacular names	Associated Orixá(s) (number of informants)
Crassulaceae		
<i>Kalanchoe pinnata</i> (Lam.) Pers./175 [OW-cosm. cult. & weed]	<i>folha da fortuna/ milagre de São Joaquim/saião/ oju oro</i>	Oxum (2), all orixás
<i>Kalanchoe integra</i> (Medic.) O. Ktz./169, 224 [NW-cosm. cult. & weed]	<i>folha da costa/ ewe dudu</i>	Oxalá, Yemanjá (3), all orixás
Cyperaceae		
<i>Cyperus rotundus</i> L./392 [OW-cosm. weed]	<i>dandá</i>	Oxalá, Ogun (2), Yemanjá
<i>Fuirena umbellata</i> Rottb. [Unkn.-cosm. weed]	<i>tiririka/labe labe</i>	Exu (2)
Euphorbiaceae		
<i>Centratherum punctatum</i> Cass. ssp. <i>punctatum</i> /250 [NW]	<i>balainho do velho</i>	Omolu
<i>Cnidoscolus urens</i> (L.) Arthur/170, 180 [NW]	<i>cansação/jojofa</i>	Exu (5)
<i>Dalechampia ilheotica</i> Wawra./281 [NW]	<i>urtiga/esimsim</i>	Exu (4)
<i>Jatropha curcas</i> L./218 [NW]	<i>pinhão branco</i>	Oxalá
<i>Jatropha gossypifolia</i> L. [NW-cosm. cult. & weed]	<i>pinhão roxo</i>	Omolu
<i>Pera</i> cf. <i>glabrata</i> (Schott) Baill./257 [NW]	<i>açoita cavalo</i>	Exu
<i>Ricinus communis</i> L./NC [OW-cosm. cult. & weed]	<i>mamona/ewe lara</i>	Yemanjá, Omolu/Abaluaiê
Fabaceae		
<i>Erythrina poeppigiana</i> (Walp.) O.F. Cook./310 [NW-cult.]	<i>mulungú</i>	Omolu, Exu
<i>Machaerium angustifolium</i> Vog./271 [NW]	<i>sete capote</i>	Exu
<i>Zornia</i> cf. <i>gemella</i> (Willd.) Vog. vel aff./256 [NW-cosm. weed]	<i>arrozinho</i>	Oxum
Flacourtiaceae		
<i>Casearia</i> sp./306 [Unkn.]	<i>São Gonçálinho</i>	Oxóssi, Xangô, Iroko
Gentianaceae		
<i>Coutoubea spicata</i> Aubl./253 [NW]	<i>papai nicolau</i>	Oxalá
<i>Irlbachia purpurascens</i> (Aubl.) Mass/264 [NW]	<i>corredeira</i>	Exu (3)
Lamiaceae		
<i>Hyptis fruticosa</i> Salzm ex. Benth./255 [NW]	<i>alecrim</i>	Oxalá, Oxum, Naná, Yemanjá
<i>Hyptis suaveolens</i> (L.) Poit./164 [NW-cosm. weed]	<i>neve cheiroso</i>	Naná
<i>Leonotis nepetifolia</i> (L.) Alt. f./229 [OW-cosm. weed]	<i>cordão de São Francisco</i>	Ogun, Xangô
<i>Mentha</i> sp./205 [Unkn.]	<i>hortelã grosso</i>	Naná

Family Species/collection number [geographical origin-status]	Vernacular names	Associated Orixá(s) (number of informants)
Lamiaceae (cont.)		
<i>Mentha pulegium</i> L./233, 318 [OW-cosm. cult.]	<i>poejo</i>	Oxum (2), Yemanjá
<i>Ocimum canum</i> Sims/211 [OW-cosm. cult.]	<i>manjeriçãõ/ catinga da crioula</i>	Oxóssi, Yemanjá (3)
<i>Ocimum gratissimum</i> L./ 219, 230, 247 [OW-cosm. cult. & weed]	<i>quiôio/alfavaca cravo</i>	Xangô (2)
<i>Plectranthus amboinicus</i> Lour./152, 304 [OW-cosm. cult.]	<i>tapete da Oxalá</i>	Oxalá(3)
<i>Pogostemon cf. cablin</i> Benth./NC [OW-cosm. cult.]	<i>patchulí</i>	Oxum (2), Oxumarê, Nanã, Yemanjá, Iansã
Lythraceae		
<i>Cuphea racemosa</i> (L.f.) Spreng. [NW]	<i>barba de São Pedro</i>	Iansã
Malpighiaceae		
<i>Byrsonima sericea</i> DC/294, 349 [NW]	<i>muricí</i>	Ogun, Oxóssi, Xangô
Malvaceae		
<i>Gossypium barbadense</i> L./NC [NW-cosm. cult.]	<i>algodão/ewe oxu</i>	Oxalá(2)
<i>Sida linifolia</i> Cav./258 [Unkn.-cosm. weed]	<i>lingua de teiú</i>	Oxóssi
Melastomataceae		
<i>Clidemia hirta</i> (L.) D. Don/159, 363 [NW]	<i>folha do fogo/ewe aina</i>	Xangô, Exu (2)
<i>Miconia hypoleuca</i> (Benth.) Triana/356 [NW]	<i>candeia branca</i>	Oxalá, Omolu
<i>Miconia</i> sp./178, 276 [NW]	<i>canela de velho</i>	Omolu (3)
<i>Tibouchina cf. lhotzkyana</i> (Presl.) Cogn./279 [NW]	<i>folha do fogo de Iansã</i>	Iansã (2)
Mimosaceae		
<i>Mimosa pudica</i> L. [NW-cosm. weed]	<i>malissa</i>	Exu
Moraceae		
<i>Cecropia pachystachya</i> Trécul/355 [NW]	<i>embaúba/abao</i>	Omolu, Xangô
<i>Ficus</i> sp./NC [NW]	<i>iroko/loco/ gameleira branca</i>	Iroko (6)
Myrtaceae		
<i>Eugenia uniflora</i> L./189 [NW-cosm. cult.]	<i>pitanga</i>	Katende/Iroko
<i>Syzygium jambos</i> (L.) Alston/394 [OW-cosm. cult.]	<i>jambo branco</i>	Oxalá
Passifloraceae		
<i>Passiflora alata</i> Dryand./NC [NW-cosm. cult.]	<i>maracujá</i>	Oxumarê
Phytolaccaceae		
<i>Petiveria alliacea</i> L./171, 295 [NW-cosm. cult. & weed]	<i>guiné/pipi/ojusaju</i>	Ogun, Iansã (2)

Family Species/collection number [geographical origin-status]	Vernacular names	Associated Orixá(s) (number of informants)
Piperaceae		
<i>Peperomia pellucida</i> HBK./176 [NW-cosm. weed]	<i>alfavaquinha de cobra/iriri/oriri</i>	Oxum, Oxalá
<i>Piper aduncum</i> L./210, 376 [NW]	<i>betis branco</i>	Xangô
<i>Piper</i> sp./283 [Unkn.]	<i>betis cheiroso</i>	Oxum, Oxumarê, Naná, Iansã
<i>Pothomorphe umbellata</i> (L.) Miq./231 [NW-cosm. weed]	<i>capeba/agogo iya</i>	Omolu/Abaluaiê
Plantaginaceae		
<i>Plantago major</i> L./208 [OW-cosm. cult. & weed]	<i>transagem</i>	Yemanjá
Plumbaginaceae		
<i>Plumbago</i> sp./165 [Unkn.]	<i>loquinho</i>	Iroko, Exu (2)
Poaceae		
<i>Andropogon schoenanthus</i> L./187 [OW-cosm. cult.]	<i>capim santo</i>	Oxalá
<i>Lasiacis ligulata</i> Hitchc. & Chase/314 [NW]	<i>taquara</i>	Oxóssi
<i>Zea mays</i> var. <i>rugosa</i> Bonaf./NC [NW-cosm. cult]	<i>pipoca</i>	Oxóssi
Rubiaceae		
<i>Borreria verticillata</i> (L.) G. Mey./275, 296 [Unkn.-cosm. weed]	<i>caiçara</i>	Ogun (2), Oxóssi
<i>Borreria</i> sp./269 [Unkn.]	<i>corredeira</i>	Exu (3)
Rutaceae		
<i>Citrus aurantium</i> L./NC [OW-cosm. cult.]	<i>laranja da terra</i>	Oxum(2)
<i>Murraya paniculata</i> (L.) Jack [OW-cosm. cult.]	<i>murta da praia</i>	Naná
<i>Ruta graveolens</i> L./201, 202 [OW-cosm. cult.]	<i>arudda</i>	Oxóssi
<i>Zanthoxylum</i> sp./273, 303 [Unkn.]	<i>tira teima</i>	Ogun, Oxóssi, Omolu
Schizaeaceae		
<i>Lygodium volubile</i> Sw./262 [NW]	<i>samambaia/ewe amin</i>	Oxóssi
Scrophulariaceae		
<i>Scoparia dulcis</i> L./207, 391 [NW-cosm. weed]	<i>vassourinha santa/ v. da Nossa Senhora</i>	Oxum
Solanaceae		
<i>Brunfelsia uniflora</i> (Pohl) D. Don./203, 317 [NW]	<i>macaçá</i>	Oxum (3), Oxumarê, Naná (2), Yemanjá (4), Iansã
<i>Nicotiana tabacum</i> L./NC [NW-cosm. cult.]	<i>fumo</i>	Ossâim(3)
<i>Solanum americanum</i> Mill./185, 215 [NW]	<i>maria preta/erva Santa Maria</i>	Iansã

Family Species/collection number [geographical origin-status]	Vernacular names	Associated Orixá(s) (number of informants)
Sterculiaceae		
<i>Cola acuminata</i> (Beauv.) Schott & Endl./307 [OW-cosm. cult.]	<i>obí/noz de cola</i>	Ifá, all the orixás
Verbenaceae		
<i>Lantana camara</i> L./312, 396 [NW-cosm. weed]	<i>cambara branca</i>	Oxalá
<i>Lantana camara</i> L./386 [NW-cosm. weed]	<i>cambara amarella</i>	Oxum
<i>Vitex</i> sp./232 [Unkn.]	<i>alfazema</i>	Oxum
Violaceae		
<i>Hybanthus colceolaria</i> (L.) Schulze-Menz [Unkn.]	<i>purga do campo</i>	Oxalá
Zingiberaceae		
<i>Aframomum meleguetta</i> K. Schum. [OW-cult.]	<i>atarê/pimenta da costa</i>	Exu (3)
<i>Alpinia zerumbet</i> (Pers.) B. L. Burtt & R. M. Sm./192 [OW-cosm. cult.]	<i>leopoldina</i>	Oxalá, Oxum (2), Odudua
<i>Hedychium coronarium</i> J. König/305 [OW-cosm. weed]	<i>jasmin do brejo</i>	Oxum

RITUAL PLANT USES

The Candomblé ethnoflora is prepared in a myriad of ways for a multitude of disorders. Unlike plant prescriptions for illness perceived to be organically based, ritual species are seldom ingested and occasionally do not even come in contact with the body. Decorative plants are placed near the house or kept on the body to repel evil eye. Priests remove negative fluids from patients by brushing or whipping the body with a bundle of leaves. Adherents wear small cloth amulets around their necks containing leaves, magical phrases, and other sacred objects in order to avoid magical spells. Selected leaves are scattered on the floor and hung above entry ways before public ceremonies to neutralize negative energies that might enter with strangers. Aromatic leaves are burned as incense to cleanse the room and its inhabitants of negative spirits.

Among the African Yoruba and their Brazilian descendants several plant species are considered indispensable to primary initiation ceremonies. These include the seeds of *obí* (*Cola acuminata*) and *orobô* (*Garcinia kola*), species employed in West Africa and Brazil during divination and initiation (Verger 1981). Secret foliar concoctions are used to wash the sacred necklaces of adepts, and magical powder prepared from leaves, seeds, and chalk is painted on the shaved heads of initiates. During the early months of initiation, the novice spends his or her nights in a small room (*roncó*) sleeping on a bed of sacred leaves.

The *abô* (leaf bath) represents the most common plant prescription for novices and secular patients. Baths are employed for initiation, for financial improvement,

and for purification (Williams 1979). Their most important role, however, is medicinal. *Abô* are taken for organically based medicinal problems, such as rheumatism, skin ailments, headaches, and the like. More commonly, the *pai* or *mãe-de-santo* prescribes baths for psychological disorders, such as anxiety and depression, particularly where these are viewed as spiritual in origin.

Leaf baths are prepared according to the individual needs of the patient. There is no set of predetermined set of foliar recipes. The priest or priestess determines the etiology and the prescriptive remedy during a divination ceremony using the *jogo de búzio*, or cowry toss (Braga 1988). Introduced along with other divination methods during the course of the slave trade, the *jogo de búzio* system allows the temple leader to consult directly with the deities. After rolling sixteen shells on a board, the *pai* or *mãe-de-santo* identifies the number of open and closed shells, that is, apertures facing up or down. The shell combination corresponds to one or several specific *odu*, or Yoruba myths, which suggests the cause of the problem and the appropriate course of action. When a bath enters into the prescribed remedy, the appropriate leaves are placed in a basin of cool water and slowly macerated with the hands. Physical manipulation of the leaves is essential, as this transfers *axé* (vital energy) from the priest to the developing bath. The resultant greenish concoction, charged with the innate power of the leaves and that of the priest of the *terreiro* (Candomblé temple), is placed inside a small altar dedicated to one or another of the African deities until the medicine has assimilated further *axé*. Finally, the patient pours the cool leaf bath over his or her body, usually starting at the shoulders, and allows it to dry before dressing.

GODS AND LEAVES

Candomblé revolves around propitiation of a pantheon of African deities, the *orixás*. Although their number in Africa may have been enormous (Bascom 1991), only a dozen or more *orixás* gained prominence in the newly constituted Brazilian *terreiros*. Devotees recognize the existence of a high god, Olórun, but he is perceived to be distant and unapproachable by humans. It is the *orixás*, serving as the earthly ambassadors of Olórun, who are directly linked to the health and happiness of mortals (Povoas 1989).

Each *orixá* is associated with a distinct realm of nature: earth, wind, water, and fire (Elbein dos Santos 1988). Ogun is the god of agriculture and iron, Xangô the god of lightning and thunder, Nanã the goddess of swamps, rain, and soil. Temperament and behavior further divide the deities; masculine *orixás* are generally hot tempered and unpredictable whereas feminine *orixás* are cool and balanced. Thus, Oxóssi is the volatile *orixá* of the hunt and of the forest. His personality as well as that of his mortal devotees is characterized by keen intelligence and curiosity. He is the itinerant seeker and explorer. Oxum, on the other hand, is the feminine deity of fresh water streams and rivers. Like the other water goddesses, Yemanjá and Nanã, her temperament reflects the perceived condition of her physical realm—cool and calm.

The *orixás* are also connected with specific symbols, preferences, and prohibitions (*euó*). These include color choices of clothing and sacred beads; offerings of food, drink, and sacrificial animals; food taboos, icons, and geographical locations.

Oxalá, for example, the creator god of peace and love, prefers lofty locations. Avoiding the color black, he and his followers dress in white from head to foot. He is prohibited from consuming crabs, hot peppers, and salt.

Candomblé adherents are connected with one or two *orixás*, and they must strictly respect the preferences and prohibitions of their guardian deities. The perceived essence of the devotee's personality, in turn, corresponds to the recognized archetype of one or more of the *orixás* (Lepine 1981). Thus, a vivacious and impulsive follower will "belong" to Iansã, fiery goddess of storms; an inquisitive foreign researcher will belong to Oxóssi, restless god of the hunt. In order to avoid spiritual problems, adherents must remain within the cosmic equilibrium imposed by their particular *orixás*. These limits, in turn, correspond with the behavioral attributes of the deity. For example, a client who belongs to Oxum, female goddess of fresh waters, is preoccupied with personal appearance and material wealth. This is the natural state of Oxum and that of her devotees. However, when this otherwise normal behavior becomes compulsive, spending grocery money on perfume, for example, the limits of Oxum have been violated and disequilibrium with the spirit world has occurred. By trespassing his or her established limits, the adherent invites physical, material, and spiritual disaster. Overheated or overcooled, he or she must propitiate the appropriate deity promptly with material offerings, more diligent observance of taboos and, in most cases, take the prescribed leaf bath.

Ossâim, guardian of the sacred leaves and medicine, is the deity most directly involved in health and healing. His domain is the forest and the field, wherever curative plants grow spontaneously. Among the Yoruba and their New World diaspora, his image is one of extreme physical disability—one eye, one leg, one enormous ear, and a humorous high-pitched voice (Thompson 1975). As the dedicated but reticent steward of the vegetal realm, Ossâim's knowledge was coveted by other deities who sought to share in his secrets. The following legend, recorded in Africa (Verger 1981), Cuba (Cabrera 1971), as well as Brazil, describes how the *orixás* came to possess individualized plant pharmacopoeias:

There is a legend of rivalry between Ossâim, the *orixá* of medicine and leaves, and Iansã, the *orixá* of stars, winds, and storms. Everything began as a result of jealousy. Iansã went to visit Ossâim. Ossâim is very reserved, quiet, silent. Iansã wanted to know what he was doing. When Ossâim has the opportunity, he explains things. But Iansã is always rushed, she wants everything done immediately. She is always asking questions, and she needs to know everything that's going on. When Iansã arrived at the house of Ossâim, he was busy working with his leaves. It happens that there are certain types of work with leaves that you can't talk about, you need to remain silent. Iansã started asking, "What are you doing? Why are you doing this? Why are you doing that?" And Ossâim remained silent. "Alright, if you don't want to tell me what you're doing, then I'll make you talk." That's when Iansã began to shake her skirt and make the wind blow. The house of Ossâim is full of leaves, with all of their healing properties, and when the wind began to blow, it carried the leaves in every direction. Ossâim began to shout, "Ewe O, Ewe O" ['my leaves, my leaves']. Ossâim

then asked the help of the *orixás* to collect the leaves, and the *orixás* went about gathering them. And it happens that every leaf that an *orixá* collected, every species, he or she became the owner of that leaf.

Scattered by the winds of Iansã, the sacred leaves became divided among the *orixás*. Whereas the mysterious power of the vegetal kingdom was retained by Os-sâim, each deity nevertheless came to be associated with his or her own personal pharmacopoeia. The following is a summary of the principal characteristics used to divide medicinal species among the deities. Only *orixás* with well developed plant correspondences are discussed.

MEDICINAL PLANT CLASSIFICATION

As the god of love and peace, Oxalá embodies the white dimension of nature. His color preference represents the major organizing force in his pharmacopoeia. The white infructescence of cultivated *algodão* (*Gossypium barbadense*) places this shrub within the domain of Oxalá, as do the aromatic white racemes of *sabugeiro* (*Sambucus australis*). The pantropical herb *boa noite* (*Catharanthus roseus* var. *albus*) has both white flowers and latex. The weeds *candeia branca* (*Miconia hypoleuca*), *purga do campo* (*Hybanthus colceolaria*), and *cambara branca* (*Lantana camara* L.) have white flowers, and *jambo branco* (*Syzygium jambos*), a domesticate from Asia, produces pale colored fruit.

Unlike the other masculine deities, whose temperaments are hot and warlike, Oxalá is most intimately associated with the female entities, spiritual forces that serve to sooth and cool. One of his healing roles, as well as that of his associated flora, is to counteract illness associated with overheating, a condition that frequently troubles adherents and clients who are connected to the hot deities. Thick-leaved plants that exude liquid when crushed, such as *folha da costa* (*Kalanchoe integra*), are considered to have cooling properties, and are thus usually associated with the cool-tempered *orixás* like Oxalá (Figure 2). In addition to cooling foliar baths, this plant is also employed as a remedy for headache, a perceived hot symptom, by placing the leaf as a poultice on the patient's forehead. These characteristics, along with the belief that Oxalá controls illness associated with the head, places this species firmly within his domain (Sandoval 1979, Williams 1979). Another of his species, the medicinal grass *capim santo* (*Andropogon schoenanthus*), is prepared as an infusion to treat hypertension, another illness associated with heat. Other cooling, thick-leaved species dedicated to this pacifist god include *folha do ar* (*Mikania glomerata*), *alfavaquinha da cobra* (*Peperomia pellucida*), and *tapete da Oxalá* (*Plectranthus amboinicus*), the leaves of which are so densely pubescent as to appear white.

Oxum is the feminine *orixá* of running water. She is a voluptuous fertility figure who is anatomically associated with the female organs and the stomach. Vain and materialistic, Oxum adores gold, jewelry, and perfume. Reflective of her love of perfume, nearly all of her leaves and flowers are sweetly fragrant. These aromatic plants are added to baths for their soothing properties, underscoring the cooling influence of Oxum. The mint family, noted for its essential oils, is represented in her pharmacopoeia by *alecrim* (*Hyptis fruticosa*), *poejo* (*Mentha pulegium*), and *patchulí* (*Pogostemon* cf. *cablin*). Other aromatics associated with Oxum include



FIG. 2.—The herb *folha da costa* (*Kalanchoe integra* [Medic.] O. Ktz.) belongs to Oxalá. Its thick leaves distinguish this as a cool plant.

sabugueiro (*Sambucus australis*), *macaça* (*Brunfelsia uniflora*), *jasmin do brejo* (*Hedy-chium coronarium*), and *beti cheiroso* (*Piper* sp.). *Laranja da terra* (*Citrus aurantium*), which has fragrant flowers and leaves, retains a cooling medicinal influence as a sedative when taken as an infusion. Water retention is believed to be a hot ailment, hence Oxum's ownership of *arrozinha* (*Zornia* cf. *gemella*), a plant employed medicinally as a diuretic. *Leopoldina* (*Alpinia zerumbet*) is particularly well suited to Oxum (Figure 3). Its flowers are prepared into an infusion that is believed to have a tranquilizing effect, diminishing the heat associated with anxiety, whereas its scented leaves are a frequent component of perfumed baths. The leaf extract of *vassourinha*



FIG. 3.—The sweetly scented leaves of *leopardina* (*Alpinia zerumbet*) pertain to Oxum. The leaves enter into aromatic baths whereas the flowers are brewed into an infusion for the treatment of anxiety.

santa (*Scoparia dulcis*) is employed to reduce fever, an obvious hot symptom, hence its possession by a cool deity.

Oxum's remaining flora reveals her obsession with wealth. Her love of gold is symbolized by the bright yellow flowers of *arrozinha* (*Zornia* cf. *gemella*), *mal-mequer* (*Wedelia paludosa*), *maravilha* (*Caesalpinia pulcherrima*), *cambara amarella* (*Lantana camara*), and *acocí* (*Wulffia baceata*). Oxum's material interests account for her association with *folha da fortuna* (*Kalanchoe pinnata*), a fleshy-leaved garden cultivar with perceived cooling properties. It has the curious habit of sprouting roots and seed-



FIG. 4.—*Unha da vaca* (*Bauhinia ovata*) represents one of Yemanjá's species. The characteristic hoof-shaped leaves of this genus, which occurs in the Old and New World, allowed early Candomblé healers to substitute a Brazilian species for the original African taxon. In some terreiros, this species is still known by its Yoruba name, *abafé*.

lings viviparously at its leaf margins, hence its perceived ability to create something from nothing. This 'leaf of fortune' has long been employed to attract money by attaching it to the doors of adherents homes (Voeks 1990). Another of Oxum's leaves, *vintém* (*Drymaria cordata*), is used for similar material ends.

Yemanjá is another fertility figure whose aquatic home is the ocean. Her preferred geographical location is the shoreline. Warm, maternal, and stable, Yemanjá is the archetype mother image. Her favorite colors are transparent or crystal blue, symbolic of her watery domain. Many of her species are aromatics, including *alecrim* (*Hyptis fruticosa*), *macaçá* (*Brunfelsia uniflora*), *patchulí* (*Pogostemon* cf. *cablin*), *manjeriçã* (*Ocimum canum*), and *dandá* (*Cyperus rotundus*). This latter Africa sedge often inhabits coastal wetlands, reflecting Yemanjá's physical domain. *Marianinha* (*Commelina diffusa*) has pale blue flowers, Yemanjá's color choice, and is employed to treat inflammation, a hot symptom.

Like Oxum, Yemanjá is connected with problems of the uterus and female organs. This may explain the inclusion of *transagem* (*Plantago major*), a medicinal herb that is prepared as an anti-inflammatory tea for uterine problems. The leaves of *unha da vaca* (*Bauhinia ovata*) are prepared as an infusion to treat diabetes, a hot disease, hence its association with this cool deity (Figure 4). Yemanjá's maternal image — she is popularly referred to as the "milk *orixá*" — is reflected in her association with *mamona* (*Ricinus communis*). The use of this weedy shrub to treat lactation prob-

lems is widespread in the Old and New Worlds (Ayensu 1978, Morton 1981). According to an elderly Candomblé *pai-de-santo*, African wet nurses in Brazil used to hang pieces of the stem of *mamona* around their necks in the belief that it relieved painful lactation. Derived from the verb *mamar*, to suckle, *mamona* in colloquial Portuguese refers to a female baby who nurses well, again suggesting this plant's connection with mother's milk and hence Yemanjá.

Nanã, the aged female goddess of rain, swamp, and soil, represents the grandmother of the *orixás*. Like the other cool deities, she is associated with regeneration. Her colors are lavender or blue and white. Nanã's leaves are mostly aromatic, including *neve cheiroso* (*Hyptis suaveolens*), *hortelã* (*Mentha* sp.), *alecrim* (*Hyptis fruticosa*), *beti cheiroso* (*Piper* sp.), *patchulí* (*Pogostemon* cf. *cablin*), and *macaça* (*Brunfelsia uniflora*). Two of her plants, *bom dia* (*Catharanthus roseus*) and *salsa da praia* (*Ipomoea pes-caprae*), display large lavender-colored flowers, representative of her color preference.

Iansã is the female deity of wind, storms, and stars. Unlike the cool female deities, Iansã can be either hot or cool, bellicose or compassionate, depending on her mood. The fiery side of her temperament is symbolized by her red color preference. The leaves of Iansã, like her archetype, vacillate between the extremes of hot and cool. Several are sweetly aromatic, such as *macaça* (*Brunfelsia uniflora*), *beti cheiroso* (*Piper* sp.), and *patchulí* (*Pogostemon* cf. *cablin*), which she shares with the other water *orixás*—Nanã, Yemanjá, and Oxum. The majority of her leaves, however, symbolize her warlike qualities. Many have an acrid or foul smell as well as pointed apices, representing her sword. These species include *aroeira* (*Schinus terebinthifolius*), which has bright red, acrid berries; *fedegoso* (*Senna occidentalis*), which has strong smelling leaves shaped like daggers; and *mastruz* (*Chenopodium ambrosioides*), which also has pointed, rank smelling leaves. *Folha do fogo do Iansã* (*Tibouchina* cf. *Ihotzkyana*), literally 'Iansã's fire leaf', has pointed leaves and is covered by a dense layer of reddish pubescence, representing her color choice. Iansã's nature is best elicited by *guiné* (*Petiveria alliacea*). Aside from acrid-smelling leaves, this herb is used medicinally as a tranquilizer and somniferant, hence its cooling dimension. If ingested for prolonged periods, however, the root extract of *guiné* is reported to produce anxiety, hallucinations, and even death (Cravo 1984). Thus, like Iansã herself, *guiné* swings unpredictably between the extremes of hot and cold.

Omolu is the dreaded god of smallpox and dermal ailments. Powerful and vengeful if ignored by his supplicants, Omolu is one of the most feared of the Yoruba deities. His image is ancient, bent, and arthritic, with skin so scarred by smallpox that he conceals himself in a suit of palm straw. His colors are white and black. Many of his leaves have rough and punctate surfaces, suggesting his own pockmarked skin. These include *balainho do velho* (*Centratherum punctatum* Cass. ssp. *punctatum*), *candeia branca* (*Miconia hypoleuca*), *canela do velho* (*Miconia* sp.), and *capeba* (*Pothomorphe umbellata*). One of Omolu's plants is *sete chagas* (*Philodendron* sp.), 'seven sores', although this plant's connection with skin disease is unclear. *Quitoco* (*Pluchea suaveolens*) represents a medicinal treatment for rheumatism, one of Omolu's noted afflictions.

Popcorn is one of Omolu's principal offerings and bath ingredients. With its contorted shape, popcorn symbolizes the skin eruptions associated with smallpox. Its explosive kernels may also be seen to reflect Omolu's volatile temper. Fear-

ing even to mention the name of this plant for fear of invoking Omolu's wrath, devotees refer to popcorn as '*a flor*' (flower) within the confines of the *terreiro*. *Mamona* (*Ricinus communis*) is another of his plants. The spiny red fruits of this species suggest Omolu's skin condition, as well perhaps as his piqued anger (Thompson 1983). The explosive nature of *mamona's* fruit, which can send its seeds flying several meters, is reflective of this god's violent temperament. *Pinhão roxo* (*Jatropha gossypifolia*), which has reddish leaves and petioles, further suggests Omolu's fiery temper.

Xangô is the volatile god of thunder, lightning, and fire. He is geographically associated with high places, and his colors are red and white. Xangô's temper is reflected by the reddish-purple floral display of some of his species, including *akokô* (*Newbouldia laevis*), *bico de papagaio* (*Centropogon cornutus*), and *cordão São Francisco* (*Leonotis nepetaefolia*). The reddish pubescence of *folha do fogo* (*Clidemia hirta*) further suggests his color preference. Xangô's flora is further characterized by a high representation of trees and shrubs. Sixty-four percent of his flora is arborescent, compared to less than 21% of the combined Candomblé pharmacopoeia. His tree flora includes *bico de papagaio*, *São Gonçálinho* (*Casearia* sp.), *muricí* (*Byrsonima sericea*), *embaúba* (*Cecropia pachystachya*), *betis branco* (*Piper aduncum*), *akokô*, and *orobô* (*Garcinia kola*). Xangô's link to arborescent as opposed to understory vegetation may stem from his preference for elevated locations. It may also follow, as one informant suggested, from the fact that trees are frequently struck by lightning, the source of *axé* for Xangô, and that this vital force is transferred from the skies via these conductors to the sacred foliage inhabiting the ground.

The masculine deities Oxóssi and Ogun are brothers according to legend. Oxóssi, who holds sway over the hunt and the forest, shoulders an iron bow and arrow. His colors are green and red. Ogun is the god of iron and war. Forever hammering out his iron implements at the forge, Ogun is by nature very hot. He is the consummate warrior figure, fending off evil, opening up passages, winning battles. His colors are green or blue.

The leaves of these brother deities, many of which they share, are characterized by long blades and pointed apices representing the spears and arrows of these two warrior gods. These species are typified by *peregum* (*Dracaena fragrans*) and the bowstring hemps *espada de Oxóssi* and *espada de Ogun* (*Sansevieria* cf. *aethiopica*). The vernacular names of Ogun and Oxóssi's leaves evoke their aggressive archetypes, their ability to solve the problems of their followers. These species include *abre caminho* (*Baccharis* sp.) 'open the way', *vence tudo* (*Rolandra fruticosa*) 'conquers everything', *comigo ninguém pode* (*Dieffenbachia maculata*) 'no one overpowers me', *tira teima* (*Zanthoxylum* sp.) 'take away stubbornness', and *vence demanda* (*Vernonia* cf. *cotoneaster*) 'achieve objectives'. Ogun's association with *dandá* (*Cyperus rotundus*) reflects the perceived magical attributes of this plant, as both West Africans and Brazilians chew the rhizomes of *dandá* in order to influence the opinion of others (Dalziel 1948).

Exu is the deity of passageways and crossroads. Capricious and at times malicious, Exu serves as messenger to the *orixás*, the transporter of *axé*. Although he is a notorious troublemaker, and great effort is expended to placate him during Candomblé ceremonies, Exu is also the god of potentiality, the catalyst that make things happen. Properly propitiated, he clears obstructions to human wants and

desires. Ignored, Exu brings calamity with a vengeance. Symbolic of his temperament, Exu's colors are red and black.

The leaves of Exu are as threatening as his personality. Many give off a burning sensation when touched, and most are employed for malevolent purposes—to destroy intimate relationships, to bring bad luck, and to create general chaos. Covered with spines and prickly pubescence, several are painful to the touch, including *urtiga* (*Dalechampia ilheotica*), *folha do fogo* (*Clidemia hirta*), *cansanção* (*Cnidocolus urens*), the fronds of *dendê* (*Elaeis guineensis*), and the stems of *malissa* (*Mimosa pudica*). The razor sharp leaf margins of *tiririka* (*Fuirena umbellata*) readily cut the skin of those who choose to handle it. The prickly fruits of this weedy sedge, along with those of *carrapicho* (*Bidens pilosa*), cling to the legs of passersby, finding by this means transport to trails and roads, the preferred haunts of Exu.

Nearly all of Exu's leaves enter into black magic formulas. The red seeds of *atarê* (*Afromum meleguetta*), for example, an African domesticate imported since the 19th century, are ground into powder and scattered in the homes of victims in order to create disorder, a practice still carried out in Nigeria (Voeks 1990). The nearly black flowers of *corredeira* (*Irlbachia purpurascens* and *Borreria* sp.), symbolizing Exu's dark side, are ground into a powder in combination with grave dirt in black magic ceremonies.

HOT AND COLD IN CANDOMBLÉ

The hot-cold opposition that is symbolized by the archetypes of the Yoruba pantheon is one of the organizing principles in the Candomblé medicinal plant classification system. As the gods are seen to gravitate towards either one or the other perceived temperature states, so also do their associated illnesses and healing plants. Hot deities are prone to hot illness, physical and psychological, and their medicinal treatments are often drawn from the pharmacopoeias of the cool goddesses. The leaves of hot gods are, at least in principle, employed to heat the cool feminine deities.

From the perspective of a cohesive ethnomedical paradigm, however, the hot and cold syndrome suffers from noticeable irregularities. First, the characteristics of several Candomblé plants fail to conform to the behavioral attributes of their associated god. *Assa peixe branco* (*Pluchea sagittalis*), for example, is one of Ogun's leaves. However, this plant produces a white floral display, suggestive of Oxalá's color preference, and is employed medicinally as a febrifuge, a hot symptom that should place this taxon within the purview of a water deity. Likewise, whereas *sabugueiro* (*Sambucus australis*) is shared by Oxalá and Oxum, both cool tempered deities, the medicinal use of this plant to treat skin problems suggests an association with Omolu, a hot god. These apparent inconsistencies, at least in some cases, reflect the range of properties that characterize individual taxa. For example, one informant connects the aromatic sedge *dandá* (*Cyperus rotundus*) with Yemanjá, suggesting the physical domain of this deity. Two other informants place *dandá* with Ogun, a god known for his ability to clear obstructions that serve to constrain his supplicants. This latter correspondence reflects the perceived magical properties of this species. Other apparent inconsistencies in god-plant associations, however, are not so readily explained.

The classification and treatment of hot and cold illness exhibits further problems. Although a host of hot medical problems are associated with masculine gods, and cooling prescriptions are associated with cool deities, the reverse situation is relatively rare. Few of the leaves used to treat cool illness are connected to the hot deities. This is not for lack of perceived cool medical problems, which include colds, flu, hypotension, and hypoglycemia, nor appropriate plant prescriptions to treat these ailments. Healers discussed the use of *mamão* (*Carica papaya*), *capim estrela* (*Rhynchospora nervosa*), *malva branca* (*Sida carpinifolia*), and other plants to treat colds, a cool illness, although none of these species correspond to a masculine deity. They are simply medicinal plants with no perceived spiritual significance. Avocado (*Persea americana*) is likewise not associated with a deity, although the leaves of this New World cultigen are prepared as a diuretic, a perceived heating property. For reasons that are unclear, the hot plant-cool illness concept is poorly developed within Candomblé.

The hot-cold syndrome is not unique to Brazilian Candomblé. This ancient concept is at the heart of early European and Asian health and healing theories, and is a dominant organizing principle in many Latin American and African American folk medical systems as well (Anderson 1987, Currier 1966, Laguerre 1987). Although the presence of a hot and cold etiology among Hispanic Americans can often be attributed to diffusion from Old World sources, the existence of this concept among Mesoamerica's pre-Hispanic civilizations, the Mayas, the Aztecs, and the Zapotecs, as well as among isolated indigenous South American societies, argues for the independent evolution of the hot-cold paradigm in the New World (Colson and de Armellada 1983, Messer 1987).

The origin of the hot-cold dichotomy within Candomblé ethnomedicine is problematic. Although hot and cool temperature states characterize the dispositions of the Yoruba deities, both in Africa and Brazil (Thompson 1983, Verger 1981), evidence that Candomblé's hot and cold etiology traces its roots to Africa is lacking. This binary system does not appear among the sacred oral texts of the Yoruba *babalaô* (Bascom 1991). Nor do the incantations recited by the *babalaô* to invoke the vital energy of the medicinal leaves allude to any hot and cold properties (Verger 1967). Yoruba herbalists, a separate class of healers who tend to organic rather than spiritual and magical illness, prescribe medicines that are bitter, sweet, sour, or peppery. But like their *babalaô* counterparts, they do not classify either illness or medicine along hot and cold lines (Buckley 1985).

There is no evidence one way or the other regarding the possible contribution of Amerindian health and healing concepts to Candomblé's hot and cold opposition. Motivated by practical concerns, particularly the virgin soil epidemics that decimated the indigenous population, sixteenth century Bahian planters and missionaries went to considerable efforts to document the local Tupinambá plant pharmacopoeia, which was extensive (Cardim 1939, Sousa 1971). Other contemporaries described how the indigenous shamans directed the women to sing and dance in a circle, after which they fell into trance and were "able to foretell future things," ceremonies that are highly reminiscent of those currently carried out in Candomblé (Staden 1928:150, Lerivs 1625). Focused on what was considered useful or exotic, these early reports not surprisingly failed to explore the more theoretical dimensions of indigenous etiology and healing.

Among Brazilians of European descent, however, the concept of environmental control of illness, particularly the deleterious effects of heat and cold, has a long pedigree. In the early 1600s, Dutch physician Guilherme Piso counseled recent arrivals to Brazil against the overuse of hot and cold baths (Piso 1948:10). During the colonial period, Brazil's excessive heat was blamed on a multitude of venereal and childhood disorders (Freyre 1986). Today a seemingly endless array of illness episodes, some life threatening, are attributed to the environmental effects of imbalanced temperature states. Activities such as drinking cold water on a hot day, taking a cool shower after a hot meal, or sitting in a recently vacated warm chair are all perceived as unnecessary health risks (Cascardo 1967).

Centuries of culture contact and miscegenation in the Northeast of Brazil has blurred the racial and cultural distinctions that separated Europeans and Africans. In the area of religion and magic, Africans borrowed liberally from their oppressors, particularly when these beliefs were found complementary to their own. Incorporating alien materials and beliefs represented both a survival mechanism—Catholicism was Brazil's only sanctioned religion—as well as actual changes in the convictions of adherents. This flexibility is characterized by the syncretism of African *orixás* and Catholic saints, a process that was well advanced in Bahia by the late 19th century (Rodrigues 1935). Such a fusion of spiritual images and meanings was facilitated by the nearly parallel roles played by the African pantheon and Catholic hagiology in the attainment of practical goals, for example, warding off disease, increasing fertility, and maintaining good health (Camara 1988). The malleability of African healing systems, the ability to change and adapt as social, economic, and biological conditions necessitate, is further underscored by the wholesale adoption of European and Amerindian medicinal and magical species by Afro-Brazilian healers (Voeks n.d.).

This process of redefinition and assimilation may well have extended into the conceptual dimensions of ethnomedicine. Two components of the hot and cold system, division of the Yoruba deities into hot and cold categories and correspondence of deities with ritual and medicinal species, arrived with African priests and priestesses during and after the slave trade. Adherents who stray from the archetypal equilibrium imposed by their guardian deities become overheated or overcooled and, in so doing, open the door to spiritual retribution. This simple opposition was, in a sense, preadapted to the addition of and modification by complementary concepts. These would have included the belief that physical and emotional distress is at least partly mediated through relations with the spirit world, to which both belief systems already subscribed. It also could have facilitated the correspondence of hot and cold deities, an African concept, with the folk belief that many illness are the outcome of hot and cold imbalance, concepts that are in all likelihood of Portuguese origin.

CONCLUSIONS

In spite of seemingly insurmountable social, economic, and material obstacles, African slaves and their descendants introduced significant elements of their native ethnomedical systems to Brazil. One of the material dilemmas that confronted newly arrived priests was how to continue practicing a plant-based healing sys-

tem in an alien floristic landscape. As slave laborers and later poor freedmen, Africans had limited opportunities to directly transplant their original *materia medica*. Two products of apparent intentional introduction are *akokô* (*Newbouldia laevis*) and *obí* (*Cola acuminata*), both of which were brought to Brazil specifically to fulfill Candomblé ritual (Voeks 1990). A few other taxa, such as *orobô* (*Garcinia kola*) and *atarê* (*Afromum meleguetta*), continue to be imported by Afro-Brazilians for ritual purposes, but have apparently failed to reproduce in Brazil. Although other useful African taxa were intentionally introduced as well, such as *dendé* (*Elaeis guineensis*), *peregum* (*Dracaena fragrans*), and *espada de Oxóssi* (*Sansevieria* cf. *aethiopica*), these most likely represented the commercial and decorative interests of Portuguese colonists rather than the demand of their captive laborers. Arriving Africans also encountered and incorporated a host of familiar herbaceous plants, such as *dandá* (*Cyperus rotundus*), *tiririka* (*Fuirena umbellata*), and *jasmin do brejo* (*Hedychium coronarium*), opportunistic Old World weeds that had successfully colonized the increasingly disturbed Brazilian landscape. Thus, by means of intentional and accidental plant introductions, Afro-Brazilian healers continued to employ at least a small percentage of their native African ethnoflora.

African immigrants must nevertheless have recognized early that the ability to practice magic and medicine in the Americas depended upon their capacity to adopt the flora immediately at hand. This ethnobotanical flexibility was provided, at least in part, by the Yoruba folk taxonomic system. In West Africa, ritual and medicinal species correspond with one or another of the ancient deities, a relationship mythically underpinned by the legend of Ossâim's leaves. The nature of these god-plant associations, which are encoded in the medicinal recipes and incantations of the *odu*, are maintained as oral text and recited during divination by *babalaô* priests, the most respected class of Yoruba healer (Bascom 1991). Although *babalaô* priests are known to have arrived in Brazil both during and after the slave trade, their highly complicated system of divination ultimately failed to survive (Carneiro 1967). Rather, in the newly constituted Candomblé *terreiros*, priests and priestesses continued to divine the source of problems, but now by means of the simpler *jogo de búzio* method (Braga 1988) and with reference to a much diminished and modified corpus of mythical text.

It is unlikely that many of the original Yoruba god-plant correspondences were maintained in Brazil. Among the various African *babalaô*, there is considerable variation in the verses of the *odu* (Bascom 1991), and it seems likely that such diversity of opinion extended to the area of god-plant associations as well. If this were the case, then obviously no single set of correspondences could have arrived in Brazil. Regardless, several introduced African taxa did retain a significant measure of their ritual and magical significance—*akokô* (*Newbouldia laevis*), *obí* (*Cola acuminata*), *orobô* (*Garcinia kola*), *atarê* (*Afromum meleguetta*), *dandé* (*Cyperus rotundus*), *peregum* (*Dracaena fragrans*), and *dendé* (*Elaeis guineensis*). More importantly, however, priests were able to incorporate hitherto unknown species into their pharmacopoeias based upon a broad suite of characteristics corresponding with the personalities, physical appearances, and preferences of each of the African *orixás*.

The Yoruba gods that survived in Brazil are divided between those perceived to be hot and cool, masculine and feminine. Hot *orixás* are associated with fiery

personalities—aggressive, warlike, volatile—and many of the New World species that were assigned to these gods symbolically reflect these behavioral attributes. Leaves and stems are spiny or prickly. Flowers and fruits are red or black reflecting their hot temperaments. Leaves exhibit linear blades, acuminate tips, foul or acrid aromas, or rugose surfaces. The feminine deities, on the other hand, represent cooling and calming influences. They are maternal, sensuous, fertile, and materialistic. Their designated personal floras, in turn, are characterized by sweetly aromatic leaves and flowers with white, gold, blue, or lavender corollas. Leaves tend to be fleshy with abundant sap. Several species enter into medicinal prescriptions to cool down illness associated with the hot deities.

The resultant Candomblé spiritual pharmacopoeia is highly representative of Bahia's evolving floristic landscape. Of those species for which origins could be determined, over 70% are of New World origin. This figure represents endemic American species that were entirely new to Africans, as well as many New World taxa that had been transported to Africa during the course of European colonization, either as weeds or cultigens. South American *algodão* (*Gossypium barbadense*) and *fumo* (*Nicotiana tabacum*), for example, which were introduced to West Africa during the colonial period, must have been familiar to most Africans prior to their enslavement and transport to Brazil (cf. Bosman 1705, Purseglove 1984). These species were incorporated into the corpus of medicinal knowledge retained in the Yoruba *odu* (Verger 1976–1977), and were likely transported to Brazil in the memories of arriving priests and priestesses. This process of recognizing and adopting New World species that had been previously introduced to Africa may have been particularly common with weedy taxa, which constitute a significant proportion of the Candomblé ethnoflora. An array of weedy species diffused to Africa during the slave trade, and many assumed importance in Yoruba healing rituals. These included *alfavaquinha de cobra* (*Peperomia pellucida*), *folha da costa* (*Kalanchoe integra*), *malissa* (*Mimosa pudica*), and *vassourinha santa* (*Scoparia dulcis*), all of which enter into healing recipes employed by African Yoruba and their Brazilian descendants (Verger 1976–1977).

Candomblé medicinal folk taxonomy bears little resemblance to its western scientific counterpart. Floral structure is seldom considered in determination, and phylogenetic hierarchy plays no role whatsoever in classification. Saliency is wholly defined by those features, tactile, olfactory, visual, geographical, or medicinal, that suggest association with the archetypes of one or another deity. Closely related taxa, for example *manjeriçã* (*Ocimum canum*) and *quiôio* (*O. gratissimum*), pertain to different *orixás*, as do varieties of the same species, such as *bom dia* (*Catharanthus roseus*) and *boa noite* (*Catharanthus roseus* var. *albus*).

Candomblé *terreiros* function independently of each other, and competition rather than cooperation characterizes their relationship. There is limited exchange of information among *terreiros* and nothing approaching a Candomblé collective medicinal knowledge. Exposed to a diverse and largely unknown flora, early priests and priestesses determined independently which species belonged to which deity based on the legend of Ossâim's leaves as well as their own perceptions of the essence of each plant. These decisions were passed on to devotees, who founded their own temples and continued to assimilate additional taxa. This independence is evidenced by the Candomblé ritual floras which, although organized by means

of the same conceptual framework, nevertheless exhibit limited floristic overlap from one priest to another and from one *terreiro* to another (Barros 1983, Fichte 1976, Williams 1979).

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